

# SCREW LESS CLIP MOUNTED COMPUTER DRIVE

## **1. Background of Invention**

### Field of Invention

This invention pertains to the design of a screw less, clip mounted computer drive. Specifically, in the present invention, a traditional drive mounting bracket or computer chassis is equipped with flexible tabs which secure a clip designed to engage and be locked into the standard screw holes located on the drive being attached.

### Description of Prior Art

Historically, computer drives such as CD-ROMs, floppy disks, DVD drives and the like, were attached to the chassis of a computer using standard micro sized machine screws. While such method of attachment was secure and precise, it required significant amounts of labor. Further, even in the most careful of environments, damaged resulted to the other internal components of the computer due to dropped screws and tool slippage.

The perceived solution in the computer industry to the problems inherent in the screw type drive attachment means has been to incorporate separate drive rails in the chassis design which allowed the computer drive being attached to slide into and then be locked into place. Typical of this type of attachment are those inventions disclosed in U.S. Patents No. 5,806,949; 5,801,920; 5,734,557; 5,599,080; 5,595,501; and 5,262,923. This solution, however, did not eliminate the use of micro sized machine screws to attach the rails to the computer drives. Additionally, use of rails necessitated the need for some type of electrical conductive grounding path between the metal drive housing and the metal computer chassis as disclosed on page 1, line 64 of U.S. Patent 5,734,557. Since the rail method of attachment did not eliminate the need for micro sized machine screws and in fact created a need for additional grounding, this method has not reduced the costs and



complexity of the traditional screw type assembly.

## **2. Objects of the Invention**

It is the object of the present invention to provide a means to attach a computer drive that is both easy as well as inexpensive. Furthermore, it is an object of the present invention to provide a computer drive attachment means that does not require the use of screws.

## **3. Summary of Invention**

The present invention completely eliminates the needs for screws or assembly tools while installing a drive component into a computer chassis. In the present invention, a securing clip is used to fasten either one or more computer drives to a computer chassis. Although any number of securing clips can be used, the present invention utilizes at least two securing clips. The securing clips contain at least two securing pins which are small and long enough to fit through pin alignment holes in the computer chassis into the standardized screw holes present in the computer drive being installed. The securing clip of the present invention utilizes a securing clip with four (4) securing pins. The securing clips are then fastened to the computer chassis using any screw-less, conventional means of attachment such as glue, welds, Velcro® or two sided tape.

Although any screw-less, conventional means of attachment can be employed to attach the securing pins to the computer chassis, in the present invention, the securing clips are fastened to the computer chassis using clip mounting features. The securing clips are equipped with flexible tabs designed to engage clip mounting features attached to or formed from the computer chassis. The clip mounting features can be either formed directly from the computer chassis material or produced separately and attached to the computer chassis using any conventional means such as glue, welds, Velcro® or two sided



tape, Once the securing clips have engaged the clip mounting features, the securing pins will be forced through the holes in the computer chassis into the standardized screw holes present in the drive being installed. Both the clip mounting features as well as the securing clip can be made from any material and of be any size so long as that when the two are engaged, the engagement is sufficient to form a secure computer drive attachment.

#### **4. Brief Description of the Drawings**

**Figure 1** is an exploded isometric view of the invention depicting two typical computer drives before installation into the computer chassis.

**Figure 2** is an isometric view showing 2 typical computer drives as installed into a computer chassis using the present invention.

**Figure 3** is an isometric view of a securing clip with four securing pins.

**Figure 4** is an isometric view of the installation of a single typical computer drive.

#### **5. Detailed Description of the Invention**

For a detailed description of the preferred embodiment of the present invention, please refer to Figures 1-4 in which like components are given like numbers for easy reference. Figure 1 depicts the installation of two typical computer drives (5). Shown in Figure 1 are the standardized screw holes (6) present on computer drives (5). The computer drives (5) are placed into the computer chassis (4) so that the standardized screw holes (6) are aligned with the pin alignment holes (7). The securing pins (2) of the securing clip (1) are positioned through the pin alignment holes (7) into the standardized screw holes (6). The securing clip (1) is attached to the computer chassis (4) using clip mounting features (3). The clip mounting features (3) engage flexible tabs (8) present on the securing clip (1).

Figure 2 depicts the computer drives (5) after they have been installed into the